

WHAT IS CLAIMED IS:

1. An image-forming apparatus comprising:

a charging object member;

5 a charging assembly which is in contact with the charging object member to electrostatically charge the charging object member;

an exposure assembly which forms an electrostatic latent image on the charging object member by exposure;

10 a non-contact developing assembly making use of a magnetic one-component developer, which develops the electrostatic latent image with the magnetic one-component developer to form a magnetic-toner image and collects a magnetic toner remaining on the charging object member; and

15 a transfer charging assembly which transfers to a recording medium the magnetic-toner image formed on the charging object member;

20 wherein said charging assembly comprises a charging member constituted of an elastic body having the shape of a roller and having a porous material at least on its surface, the surface of said charging member is movable with a velocity differential in the opposite direction with respect to the surface of said charging object member, and conductive particles are
25 present at least at the contact surfaces between said charging member and said charging object member;

said velocity differential being from -101 % to

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-400 %;

said charging member having a surface roughness Ra of from 1 μm to 500 μm ;

said charging object member having a surface with a contact angle to water of from 86° to 103°;

said magnetic one-component developer comprising a magnetic toner having at least a binder resin and a magnetic material, and said magnetic one-component developer having an average circularity of 0.950 or more as determined from the following equations:

Equation (1)

Circularity (Ci) =

$$\frac{\text{Circumferential length of a circle with the same area as projected particle image}}{\text{Circumferential length of projected particle image}}$$

Equation (2)

$$\text{Average circularity } (\bar{C}) = \frac{\sum_{i=1}^m C_i}{m}$$

2. The image-forming apparatus according to claim 1, wherein said magnetic one-component developer has conductive particles.

3. The image-forming apparatus according to claim 2, wherein said conductive particles have a specific resistance of $1 \times 10^{12} \Omega \cdot \text{cm}$ or below and an average particle diameter of from 10 nm to 10 μm .

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4. The image-forming apparatus according to claim 1, wherein said charging object member is an electrophotographic photosensitive member, the outer-most surface layer of which has a volume resistivity of from $1 \times 10^9 \Omega \cdot \text{cm}$ to $1 \times 10^{14} \Omega \cdot \text{cm}$.

5. The image-forming apparatus according to claim 1, which further comprises an intermediate transfer member, and the magnetic toner image on said charging object member is transferred to the recording medium via the intermediate transfer member.

6. The image-forming apparatus according to claim 1, wherein said charging member is a charging roller and the charging roller has a hardness of from 25 degrees to 50 degrees as Asker-C hardness.

7. The image-forming apparatus according to claim 1, wherein said conductive particles have a specific resistance of $1 \times 10^{12} \Omega \cdot \text{cm}$ or below.

8. The image-forming apparatus according to claim 1, wherein said conductive particles have an average particle diameter of from $0.010 \mu\text{m}$ to $10 \mu\text{m}$.

9. An image-forming method comprising:
charging a charging object member

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electrostatically by means of a charging assembly which is in contact with the charging object member;

5 exposing the charging object member thus charged, by means of an exposure assembly to form an electrostatic latent image on the charging object member;

10 developing the electrostatic latent image by means of a non-contact developing assembly having a magnetic one-component developer, to form a magnetic-toner image on the charging object member;

transferring the magnetic-toner image formed on the charging object member, to a recording medium by means of a transfer charging assembly;

15 charging by means of the charging assembly the charging object member having thereon a magnetic toner remaining after transfer;

20 exposing the charging object member thus charged, by means of the exposure assembly to form an electrostatic latent image on the charging object member;

25 developing the electrostatic latent image with the magnetic one-component developer to form a magnetic-toner image on the charging object member, and collecting in the non-contact developing assembly the magnetic toner remaining on the charging object member; and

transferring the magnetic-toner image formed on

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the charging object member, to a recording medium by means of the transfer charging assembly;

wherein said charging assembly comprises a charging member constituted of an elastic body having the shape of a roller and having a porous material at least on its surface, the surface of said charging member is moved with a velocity differential in the opposite direction with respect to the surface of said charging object member, and conductive particles are present at least at the contact surfaces between said charging member and said charging object member;

said velocity differential being from -101 % to -400 %;

said charging member having a surface roughness Ra of from 1 μm to 500 μm ;

said charging object member having a surface with a contact angle to water of from 86° to 103°;

said magnetic one-component developer comprising a magnetic toner having at least a binder resin and a magnetic material, and said magnetic one-component developer having an average circularity of 0.950 or more as determined from the following equations.

Equation (1)

Circularity (Ci) =

$$\frac{\text{Circumferential length of a circle with the same area as projected particle image}}{\text{Circumferential length of projected particle image}}$$

Equation (2)

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Average circularity (C) = $\frac{\sum_{i=1}^m C_i}{m}$

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